AMENDMENTS TO THE CLAIMS

Claim 1 (Currently amended): A modified radial motion (MRM) method for [illegible] modifying lengthwise curvature of face-milling spiral bevel and hypoid gears [[by which]] capable of ~~modifying a locus of a cutter center into a curve without changing a head cutter's geometry~~ modifying lengthwise curvature of face-milling spiral bevel and hypoid gears by providing modified radial motion of [[the]] a head cutter [[with]] and by cooperating with rotation of a cradle without changing the head cutter's [illegible] geometry;

during the process of modifying the lengthwise curvature, radial setting of the head cutter will change with the rotation of the cradle, and a rotation center of the head cutter will trace a circular arc in a machine plane if radial setting is constant, so that an adjustability of gear set will be improved without changing the bearing ratio.

Claim 2 (Currently amended): The MRM method as claimed in claim 1, wherein the modified radial motion of the head cutter and a rotation angle of the cradle are nonlinear functions of a rotation angle of work-gear [[or]] and a rotation angle of the cradle.

Claim 3 (Currently amended): The MRM method as claimed in claim 1, wherein [[the]] a locus of the head center ~~can be~~ is achieved by a constant radial setting ~~cooperating with modification of~~ and by modifying a vertical distance E_m between work-gear-axis c-c and cradle-axis a-a.

Claim 4 (Currently amended): The MRM method as claimed in claim 2, wherein the modified radial motion of the head cutter and the rotation angle of the cradle are functions of a rotation angle of work-gear [[or]] and a rotation angle of the cradle, ~~which can be~~ a relationship between the head cutter, the rotation angle of the cradle, the rotation angle of work-gear and the rotation angle of the cradle is a high-order polynomial formula [[form]].

AMENDMENTS TO THE CLAIMS

Claim 1 (Currently amended): A modified radial motion (MRM) method for ~~[[of]]~~ modifying lengthwise curvature of face-milling spiral bevel and hypoid gears ~~[[which]]~~ capable of ~~modifying helices of a cutter center into a curve without changing a head cutter's geometry~~ modifying lengthwise curvature of face-milling spiral bevel and hypoid gears by providing modified radial motion of ~~[[the]]~~ a head cutter and by cooperating with rotation of a cradle without changing the head cutter's geometry;

during the process of modifying the lengthwise curvature, radial setting of the head cutter will change with the rotation of the cradle, and a rotation center of the head cutter will trace a circular arc in a machine plane if radial setting is constant, so that an adjustability of gear set will be improved without changing the bearing ratio.

Claim 2 (Currently amended): The MRM method as claimed in claim 1, wherein the modified radial motion of the head cutter and a rotation angle of the cradle are nonlinear functions of a rotation angle of work-gear ~~[[or]]~~ and a rotation angle of the cradle.

Claim 3 (Currently amended): The MRM method as claimed in claim 1, wherein ~~[[the]]~~ a locus of the head center ~~can be~~ is achieved by a constant radial setting ~~cooperating with modification of~~ and by modifying a vertical distance E_m between work-gear-axis *c-c* and cradle-axis *a-a*.

Claim 4 (Currently amended): The MRM method as claimed in claim 2, wherein the modified radial motion of the head cutter and the rotation angle of the cradle are functions of a rotation angle of work-gear ~~[[or]]~~ and a rotation angle of the cradle, ~~which can be~~ a relationship between the head cutter, the rotation angle of the cradle, the rotation angle of work-gear and the rotation angle of the cradle is a high-order polynomial formula ~~[[form]]~~.